What is claimed is:

1. A method of operating a solid fuel fired boiler, comprising:

introducing a solid fuel into the boiler;

introducing an iron-bearing material into the boiler;

introducing at least one carbon compound along with the iron-bearing material, the at least one carbon compound promoting reduction of iron oxides; and at least one of the following steps are performed:

(i) at least partially combusting the solid fuel to produce an ash slag, wherein at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature is less than the same ash fusion temperature characteristic of a second ash slag produced from combustion of the solid fuel alone; and

(ii) at least partially combusting the solid fuel to produce an ash slag, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of ash slag produced from the combustion of the solid fuel alone.

2. The method of claim 1, wherein the solid fuel comprises a sub-bituminous coal and the boiler is at least one of a slag-type furnace and a wet-bottom boiler.

3. The method of claim 1, wherein the composite ash slag has at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature less than 2600 degrees F.

4. The method of claim 1, wherein the boiler is for at least one of steam production and electricity generation.

5. The method of claim 1, wherein the boiler is a cyclone boiler.

6. The method of claim 6, wherein the composite ash slag has a viscosity such that the composite ash slag flows from the boiler, and wherein the iron bearing material is at least one of mill scale from steel production and dust from blast furnace gas cleaning equipment.

7. The method of claim 1, further comprising pulverizing the solid fuel prior to introducing the solid fuel into the boiler.

8. The method of claim 1, wherein the iron-bearing material comprises at least one of ferrous oxide and ferric iron oxide.

9. The method of claim 1, wherein the iron-bearing material comprises magnetite.

10. The method of claim 1, wherein the iron-bearing material is at least one of mill scale from steel production and dust from blast furnace gas cleaning equipment.

11. The method of claim 1, wherein the at least a portion of the iron bearing material fluxes the ash slag to produce the ash slag.

12. The method of claim 1, wherein the boiler comprises:

a pulverizer, wherein the solid fuel is fed to the pulverizer;

a burner;

a fuel transfer system communicating with the pulverizer and the burner; and

a combustion chamber comprising an enclosure at least partially surrounding the burner.

13. The method of claim 5, wherein the cyclone boiler comprises:

a fuel storage bunker;

a cyclone burner;

a fuel transfer system communicating with the fuel storage bunker and the cyclone burner; and

a combustion chamber comprising an enclosure at least partially surrounding the burners.

14. The method of claim 1, wherein the concentration of iron-bearing material to solid fuel is from about 0.5 to about 2.5 weight percent.

15. The method of claim 1, wherein the composite ash slag has a total iron concentration of at least about 15 weight percent.

16. The method of claim 1, wherein the iron-bearing material is added to the solid fuel before introducing the solid fuel and the iron-bearing material into the boiler.

17. The method of claim 1, wherein the melting point of the composite ash slag is less than 2600 degrees F.

18. The method of claim 1, wherein one of step (i) or (ii) is performed.

19. A method of operating a solid fuel fired boiler, comprising:

introducing a solid fuel into at least one of a slag-type furnace and a wet-bottom boiler, wherein the at least one of the slag-type furnace and the wet-bottom boiler comprises:

a fuel storage bunker,

a burner,

a fuel transfer system communicating with the fuel storage bunker and the burner, and

a combustion chamber comprising an enclosure at least partially surrounding the burner,

introducing an iron-bearing material into at least one of the fuel storage bunker, the fuel transfer system, the burner, and the combustion chamber, and at least one of the following:

(i) at least partially combusting the solid fuel to produce an ash slag, wherein at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature is less than the same ash fusion temperature characteristic of a second ash slag produced from combustion of the solid fuel alone; and

(ii) at least partially combusting the solid fuel to produce an ash slag, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of ash slag produced from the combustion of the solid fuel alone.

20. The method of claim 19, wherein the solid fuel is a sub-bituminous coal having a sulfur content less than about 1.5 wt.% (dry basis of the coal) and wherein the at least one of a slag-type furnace and a wet-bottom boiler is a cyclone furnace.

21. The method of claim 19, wherein the coal comprises a sulfur content less than about 1.5 wt.% (dry basis of the coal).

22. The method of claim 19, wherein the melting point of the composite ash slag is less than 2600 degrees F.

23. The method of claim 19, wherein steps (i) or (ii) is performed.

24. A method of operating a solid fuel fired boiler, comprising:

introducing a solid fuel into at least one of a slag-type furnace and a wet-bottom boiler;

introducing an iron-bearing material into the at least one of a slag-type furnace and a wet-bottom boiler, wherein the iron bearing material is at least one of mill scale from steel production, and dust from blast furnace gas cleaning equipment; and

at least partially combusting the solid fuel to produce an ash slag, wherein in the at least partially combusting step at least one of the following is true:

(i) at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature less than the same ash fusion temperature characteristic of the ash slag produced from combustion of the solid fuel alone; and

(ii) at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of ash slag produced from the combustion of the solid fuel alone.

25. The method of claim 24, wherein the ash slag has a viscosity during the at least partially combusting step that is less than the viscosity of a second ash slag produced from combustion of the solid fuel alone.

26. The method of claim 24, wherein the ash slag has a melting point during the at least partially combusting step that is less than the melting point of a second ash slag produced from combustion of the solid fuel alone.

27. The method of claim 24, wherein the iron-bearing material comprises at least about 1 wt.% (dry basis) mineralizer.

28. The method of claim 24, wherein at least about 10 wt.% (dry basis) of the iron-bearing material is wustite.

29. The method of claim 24, wherein the iron-bearing material comprises from about 0.1 to about 10 wt.% of a carbon-containing compound.

30. The method of claim 31, wherein the carbon-containing compound is selected from the group consisting of a grease, an oil, and mixtures thereof.

31. The method of claim 24, wherein the iron-bearing material comprises an adhesive.

32. The method of claim 24, wherein the iron-bearing material comprises a flow aid and/or abrasive material.

33. The method of claim 24, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having at least one characteristic selected from the group consisting of viscosity and melting temperature less than the same characteristic of ash slag produced from combustion of the solid fuel alone.

34. The method of claim 25, wherein a $T_{250}$ temperature at which the ash has a viscosity of 250 poise produced from the combustion of the solid fuel and iron-bearing material is at least 100 degrees Fahrenheit lower than the $T_{250}$ temperature produced from the combustion of the solid fuel alone.

35. The method of claim 25, wherein the solid fuel is coal and the coal has a sulfur content of less than about 1.5 wt.% (dry basis of the coal).

36. The method of claim 24, wherein the melting point of the composite ash slag is less than 2600 degrees F.